

CLAIMS

What is claimed is:

1. A device for accelerating functioning of a software
2 application having multi-layer, high overhead protocols, the device
comprising:
4 a first processor operating a software application having a
multi-layer protocol;
6 a high performance processor configured to operate one
layer of the multi-layer protocol according to a command from the first
8 processor; and
a memory accessible to each of the first processor and the
10 high performance processor for passing commands and data between the
first processor and the high performance processor.
2. The device of claim 1 wherein the first processor
2 operates a multi-layer security protocol.
3. The device of claim 1 wherein the high performance
2 processor is configured to operate a mathematical algorithm layer of the
multi-layer protocol.
4. The device of claim 1 wherein the high performance
2 processor further comprises a digital signal processor.

5. The device of claim 4 wherein the digital signal
2 processor is further configured to operate a modular math function.

6. The device of claim 5 wherein the digital signal
2 processor is further configured to operate a modular math function
comprising an exponentiation function.

7. A device for accelerating security protocols, the device
2 comprising:
a multi-layer security protocol having one or more of an
4 encryption algorithm and an authentication algorithm;
a shared memory;
6 a processor coupled to the memory and operating a first
portion of a predetermined one of the security protocols; and
8 a high performance processor coupled to the memory and
operating a second portion of the predetermined one of the security
10 protocols.

8. The device of claim 7 wherein the high performance
2 processor operates the second portion of the security protocol in response
to a command from the processor and returns an interrupt signal.

9. The device of claim 7 wherein the high performance
2 processor operates the second portion of the security protocol on data
from the processor.

10. The device of claim 9 wherein the high performance
2 processor operates the second portion of the security protocol using a
modular math function.

11. The device of claim 10 wherein the processor passes
2 the data to the high performance processor via the shared memory, and
the high performance processor returns a result from operating the
4 second portion of the security protocol to the processor via the shared
memory.

12. A circuit for partitioning a multi-layer security services
2 protocol, the circuit comprising:
a shared memory;
4 first and second processor cores coupled to the shared
memory;
6 a multi-layer security services protocol partitioned between
each of the first and second processor cores;
8 one or more application program interfaces operated by the
first processor core for interfacing between the security services protocol
10 and the second processor core; and
a modular math function operating on the second processor
12 core.

13. The circuit of claim 12 wherein the first and second
2 processor cores are coupled together through the shared memory.

14. The circuit of claim 12 wherein the security services
2 protocol further comprises one of an encryption algorithm and an
authentication algorithm.

15. A method for accelerating a multi-layer protocol, the
2 method comprising:
partitioning a function of a multi-layer protocol in a first
4 processor;
distributing the function to a second high performance
6 processor via a memory shared by both the first and second processors;
performing the distributed function in the high performance
8 processor; and
returning a result of the distributed function from the high
10 performance processor via the shared memory.

16. The method of claim 15 wherein performing the
2 distributed function further comprises performing the distributed
function in response to a command from a first processor.

17. The method of claim 16 wherein the first processor
2 performs the partitioning of the function.

18. The method of claim 15 wherein performing the
2 distributed function further comprises operating an algorithm to perform
the function.

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